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An endemic coralsnake mimic: a new state record of *Sonora michoacanensis* (Dugès, 1885) (Squamata, Colubridae) in Central Mexico

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Abstract. *Sonora michoacanensis* (Dugès, 1885), Michoacan Groundsnake (Squamata, Colubridae) is a non-venomous snake endemic to Mexico, distributed across the Depresión del Balsas and along the Pacific Coast in the states of Morelos, Puebla, Guerrero, Michoacán, Colima, and Jalisco. We present the first record of this species from the State of Mexico. The new record fills a gap in the known distribution of *S. michoacanensis* in Central Mexico, and increases the number of known colubrid species to 23 and the total number of reptile species in the State of Mexico to 104.

Key words: non-venomous snake, State of Mexico, Tlatlaya

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INTRODUCTION

Sonora michoacanensis (Dugès, 1885), Michoacan Groundsnake, is a non-venomous snake endemic to Mexico, currently known to be distributed across the Depresión del Balsas and along the Pacific Coast in the states of Puebla, Morelos, Guerrero, Michoacán, Colima, and Jalisco (Cox et al. 2012, 2018; Reyes-Velasco 2024). This species is a terrestrial and fossorial snake that feeds on invertebrates; it is often found in herbaceous vegetation and in tropical deciduous, thorn, and oak forests, as well as in cultivated areas (Vargas Santamaría and Flores-Villela 2006; Medina-Aguilar et al. 2011; Reyes-Velasco 2024). According to Echternacht (1973) and Campbell and Lamar (2004), *S. michoacanensis* is considered a coralsnake mimic. *Sonora michoacanensis* was given an Environmental Vulnerability Score (EVS) of 14, which is at the lower end of the high vulnerability category by Wilson et al. (2013). It is Least Concern in the IUCN Red List (Ponce-Campos et al. 2007), and it is not included in the Norma Oficial Mexicana (SEMARNAT 2010). Currently, 103 species of reptiles have been recorded in the State of Mexico (Lemos-Espinal and Smith 2020; Barragán-Reséndiz et al. 2022; Monroy-Vilchis et al. 2024), including 22 species of colubrids (Lemos-Espinal and Smith 2020; Barragán-Reséndiz et al. 2022). Herein we report a new observation of *S. michoacanensis*, the first record from the State of Mexico, Mexico, which enhances our understanding of this poorly known colubrid species.

METHODS

During a field trip, two people encountered an individual of *Sonora michoacanensis*. The total length of the specimen was approximately 40 cm. Based on two photographs (Figure 1A, B) we described the specimen's coloration utilizing the Colour Catalogue for Field Biologists as reference (Köhler 2012). After one photo was taken (Figure 1A), the snake was killed by local villagers (Figure 1B). Unfortunately, the specimen was not collected. We deposited the photographs in the Colección Fotográfica de Herpetología (CFH), Facultad de Ciencias, Universidad Autónoma del Estado de México, Toluca, Mexico. A map including the new record, was constructed using distributional data from the Sistema Nacional de Información sobre Biodiversidad (SNIB-CONABIO), Vernet.org, Arctos, and GBIF.

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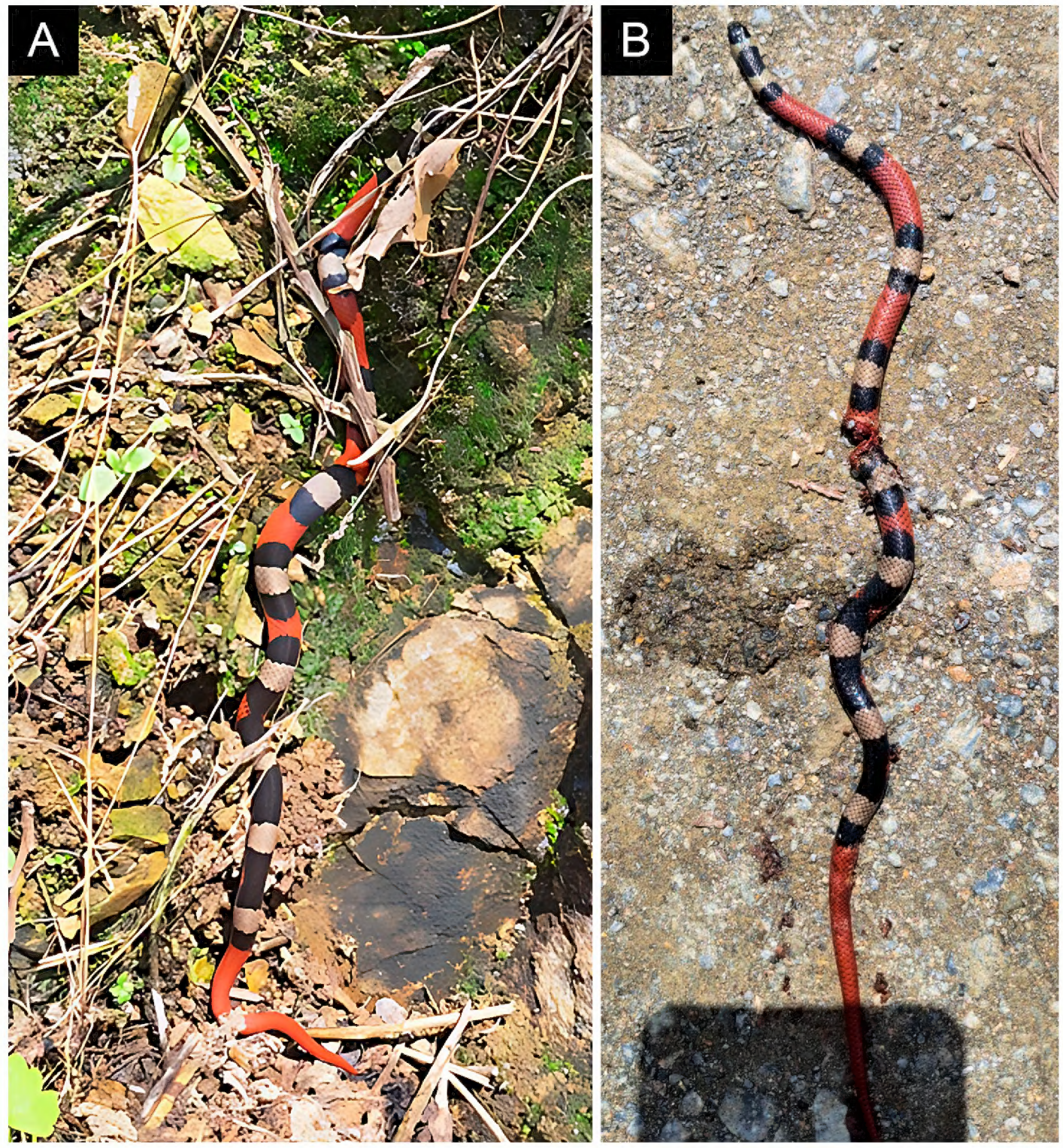

Figure 1. *Sonora michoacanensis* in the Municipality of Tlatlaya, State of Mexico, Mexico. **A.** Live specimen. **B.** Same specimen, freshly killed. Photos by Huber Bertín Serrano-López.

RESULTS

***Sonora michoacanensis* (Dugès, 1885)**
Figure 1

New record. MEXICO – State of Mexico • Tlatlaya Municipality, Santa María; 18.5981°N, 100.1027°W; 1126 m elev.; 06.X.2024; Huber Bertín Serrano-López obs.; vegetation consisted of non-native grass, weather conditions were clear, warm and sunny; 1 sex indet., CFH 41.

Identification. We identify the snake as *S. michoacanensis* based on its coloration pattern (Figure 1A). According to Echternacht (1973) and Cox et al. (2012), although there is variation in the dorsal coloration pattern of this species, the pattern on the head and neck is stable. The head presents a dark (Jet Black, color 300) mask that extends from the rostral scale to the margins of the temporal scales, followed by a dark brown (Pale Buff, color 1) nuchal band that continues into a black neck (Jet Black, color 300). The background coloration of both the ventral and dorsal surfaces is red (Spectrum Red, color 67), with the dorsum displaying a monadal pattern of bands: a central gray cream (Pale Buff, color 1) band flanked by anterior and posterior black bands (Jet Black, color 300), followed by a broader red band (Spectrum Red, color 67). These bands extend partially onto the ventral surface; additionally, the specimen shows at least three pairs of fused black rings on the posterior dorsal area, displacing the red background coloration to the lateral regions, giving the back a bicolor pattern appearance. The tail is uniformly red (Spectrum Red, color 67). *Sonora michoacanensis* may be considered an imperfect case of Batesian mimicry of the genus *Micrurus* Wagler, 1824. One of the main characteristics of *S. michoacanensis* is the absence of a banded or ringed tail, which distinguishes it from *Micrurus* and from other *Sonora* Baird & Girard, 1853 species (Cox et al. 2012), which have banded tails.

DISCUSSION

Our specimen of *Sonora michoacanensis* represents the first formal record from the State of Mexico, Mexico (Depresión del Balsas Physiographic Province). The record fills a gap between reports from localities in north-

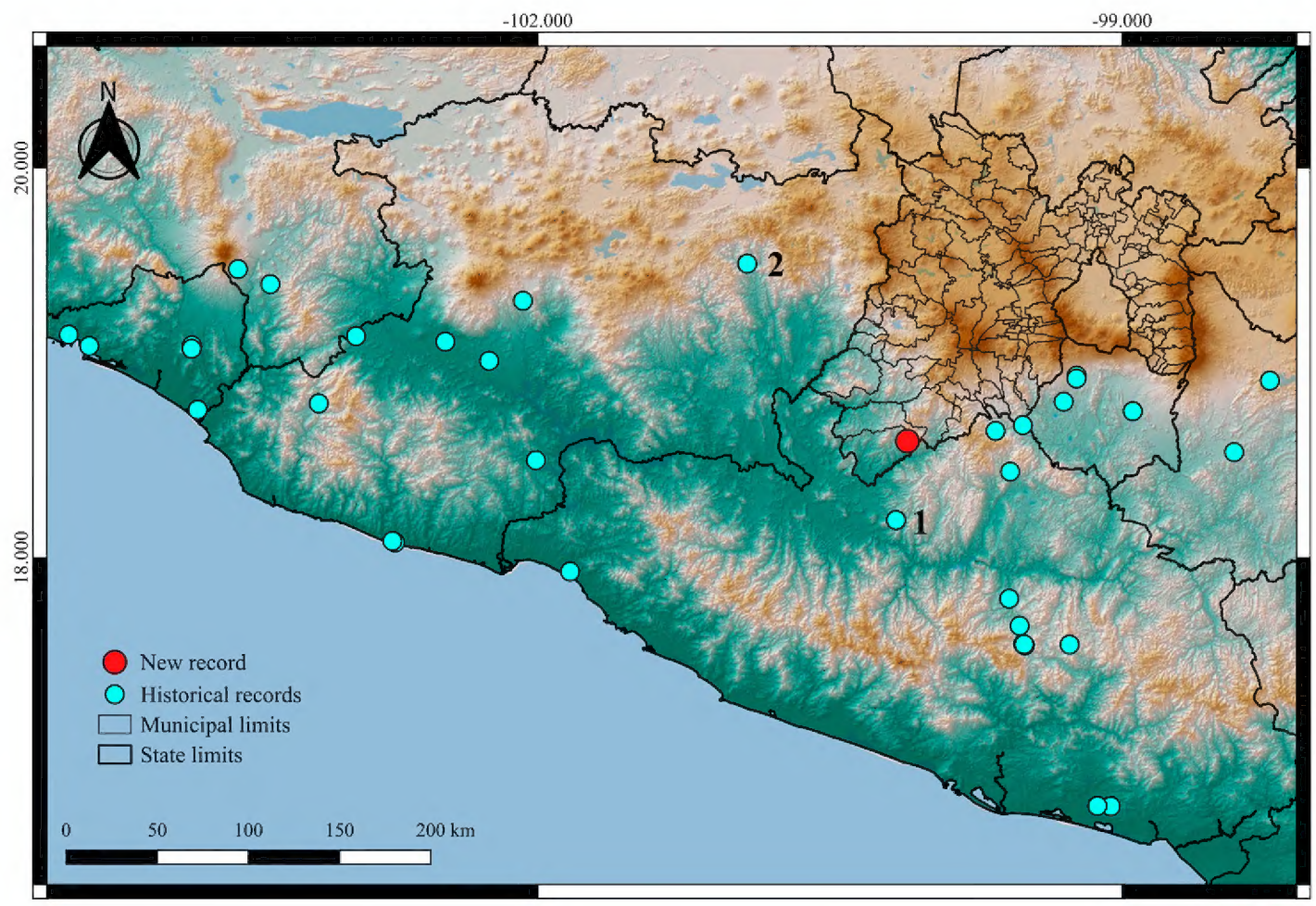

Figure 2. Distributional map of *Sonora michoacanensis* in Mexico: 1 = Amacuahuila, Municipality of Arcelia, Guerrero, 2 = Paturio, Municipality of Tzitzio, Michoacán.

ern Guerrero (45 km in a straight line from Amacuahuila, Municipality of Arcelia) and northeast Michoacán (133 km in a straight line from Paturio, Municipality of Tzitzio) (Figure 2).

Currently, 59 species of snakes, including 22 colubrids, have been reported from the State of Mexico. Our new record increases the number of Colubridae to 23 species (Lemos-Espinal and Smith 2020; Barragán-Reséndiz et al. 2022), and the total number of reptile species to 104. Our study confirms the potential presence of *S. michoacanensis* across the southwestern State of Mexico (Cox et al. 2018; Lemos-Espinal and Smith 2020). Our observation suggests that additional records of this species may also be found in the state.

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ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

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Author contributions

Conceptualization: LSG, OHG. Formal analysis: GGG. Investigation: LSG, OHG. Methodology: AGB. Validation: GSV. Writing – original draft: LSG, OHG. Writing – review and editing: GSV, AGB, GGG.

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Data availability

All data that supports the findings of this study is available in the main text.

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